

EPA Superfund Explanation of Significant Differences:

JFD ELECTRONICS/CHANNEL MASTER

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OXFORD, NC

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**EXPLANATION OF SIGNIFICANT DIFFERENCE
TO THE REMEDIAL ACTION FOR THE
JFD ELECTRONICS/CHANNEL MASTER SITE
OXFORD, GRANVILLE COUNTY, NORTH CAROLINA**



PREPARED BY:

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA, GEORGIA**

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1.0 INTRODUCTION

Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) require that the Environmental Protection Agency (EPA) publish an Explanation of Significant Difference (ESD) when significant changes in a Superfund remedy occur after the Record of Decision is signed. The purpose of this ESD is to notify all parties of concern that the EPA, as the lead agency, with the support of North Carolina Department of Environment and Natural Resources (NC DENR), is enacting a significant change to the soils portion of the Remedial Action for the JFD Electronics/Channel Master Superfund Site, located in Oxford, Granville County, North Carolina. These changes are being made based on information collected after the Remedial Design and immediately prior to the Remedial Action. This information indicates that surficial metals-contaminated soils cleanup can be achieved more efficiently and cost effectively than the remedy documented in the 1999 Record of Decision Amendment for the Site.

The Record of Decision (ROD) for this Site was signed on September 10, 1992. An ESD regarding the groundwater portion of the remedy was signed on January 24, 1996. An Amendment to the Record of Decision regarding the soil and sludge portion of the remedy was signed on May 4, 1999.

As required by Sections 300.435(c)(2)(i)(A) and 300.825(a)(2) of the NCP, a copy of this ESD will be added to the JFD Electronics/Channel Master Superfund Site Administrative Record and Information Repository. The Administrative Record and Information Repository can be found in the Richard H. Thornton Public Library in Oxford, North Carolina, and in the US EPA Region 4 Record Center in Atlanta, Georgia. Both addresses and hours of operation are provided in Section 7.0 of this document. The public is encouraged to review the Administrative Record and the Information Repository at either of these locations.

2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

2.1 Site History and Contamination

The JFD Electronics/Channel Master Site (the Site) is approximately 13 acres in size and is located at the corner of Industrial Drive and Pine Tree Road, approximately 2 miles southwest of Oxford, in Granville County, North Carolina. JFD Electronics manufactured television antennas from 1961 to 1979 at the Site. Organic solvents were reportedly used on-site for cleaning tools and antenna elements. The manufacturing processes involved a copper/nickel

electroplating and chrome conversion coating of antenna parts. Wastes generated from the processes, primarily wastewater and sludge, contained a number of metals, including chromium, lead, and cyanide. Wastewater was treated in an on-site treatment plant. Sludge was disposed of in sludge drying beds along the southern property boundary and also in an unlined lagoon.

Channel Master owned the property from 1980 to 1984, during which time they produced satellite antennas, amplifiers and boosters at the Site. NC DENR conducted an inspection of the Site in 1987. As a result of their findings, Channel Master conducted a voluntary cleanup of the lagoon in 1987 and 1988. The Site was placed on the National Priorities List (NPL) in October 1989. EPA conducted a Remedial Investigation/Feasibility Study (RI/FS) of the Site during 1991.

2.2 Selected Remedies

The ROD was signed on September 10, 1992. In 1993 JFD Electronics/Channel Master signed a Consent Decree agreeing to implement the Remedial Design and Remedial Action (RD/RA). In January 1996, an ESD was signed, which altered the groundwater treatment method defined in the 1992 ROD. Treatability Studies conducted in 1994 and 1995 found that soils and sludges contaminated with cyanide could not feasibly be treated on-site to meet treatment standards. Therefore, the ROD was amended in May 1999.

2.2.1 Groundwater Remedies

The groundwater remedy selected in the 1992 ROD, was Alternative 4: Groundwater Extraction, Treatment with Alkaline Chlorination, Precipitation/Filtration, Air Stripping, and Carbon Adsorption. The estimated cost was \$5,181,000. During the Remedial Design, the contractors for the Potentially Responsible Parties (PRPs) collected additional groundwater data which indicated that several changes could be made to the remedy to make it more efficient and cost effective. In January 1996, an ESD was signed which changed the groundwater remedy. The Alkaline Chlorination, Precipitation/Filtration and Carbon Adsorption treatment methods were conditionally eliminated. These steps would be added back to the system if performance monitoring after system start-up showed exceedances of POTW or surface water standards (depending on where the effluent would be discharged) for cyanide, metals or volatile organic compounds.

2.2.2 Soil and Sludge Remedies

The soil and sludge remedy selected in the 1992 ROD was Alternative 4: Excavation, Treatment with Oxidation-Reduction, Stabilization, On-site Disposal, Capping. The cost estimate of this Alternative for the remediation of the approximate 3,000 cubic yards of cyanide- and metals-contaminated soil and sludge was \$1,211,000. Treatability Studies conducted in 1994 and 1995 found that soils and sludges contaminated with cyanide could not feasibly be treated on-site to meet treatment standards. Therefore, in May 1999, the Record of Decision was amended. The ROD Amendment divided the soil and sludge into two categories: (1) cyanide- and metals-contaminated sludge/soil, and (2) metals-contaminated soils. The major components of the modified remedy for the cyanide- and metals-contaminated sludge/soil included:

- Excavating approximately 1,750 cubic yards of cyanide-impacted sludge;
- Transporting the sludge off-site to an appropriate treatment and disposal facility;
- Treating the sludge with alkaline chlorination to reduce levels of cyanide;
- Reducing any hexavalent chromium present in the sludge to trivalent chromium;
- Stabilizing the sludge for metals to reach the disposal requirements established by the disposal facility; and
- Disposing of the treated and stabilized sludge in the off-site facility.

The contaminated soil which does not require treatment for cyanide, but did exceed remediation levels for metals would remain on-site for treatment and disposal. The modified remedy for the metals-contaminated soil included:

- Stabilizing the contaminated soil by adding Portland Cement;
- Sampling and analyzing the cured mixture to confirm that it meets the treatment levels established in the 1992 ROD for each metal, as well as the compressive strength requirements of 20 pounds per square inch (psi); and
- Covering the treated material with topsoil and seeding the areas with a vegetative cover.

3.0 BASIS FOR THE DOCUMENT

The information that prompted and supports significant differences from the selected remedy was instigated by surficial soil sampling results collected after the Remedial Design and immediately prior to the Remedial Action. This information indicates that surficial metals-contaminated soils cleanup can be achieved more efficiently and cost effectively than the remedy documented in the 1999 Record of Decision Amendment for the Site. This is due to a decrease in the estimated volume of metals-contaminated soils, which would be required to be treated on-site according to the 1999 ROD Amendment. The volume of soil estimated in the 1999 ROD Amendment was at about the break-even point for cost for stabilizing soil on-site versus transporting it off-site for treatment and disposal. Since it was expected to cost about the same for either alternative, it was preferred by EPA to treat the wastes on-site. Recent sampling results and review of the file for this Site showed that the volume of metals-contaminated surficial soil is significantly less than previously estimated.

The estimate of contaminated soil and sludge volume was listed in the 1992 ROD as 3,000 cubic yards (yd³). During the RI, analysis was performed for chromium (no species-differentiation) and total cyanide, in addition to other analytes. On page 67 of the 1992 ROD it states that "All chromium present is assumed to be in the hexavalent state." The remediation levels were set for hexavalent chromium (Cr⁺⁶), although Cr⁺⁶ had not been specifically analyzed. The areas to be remediated were selected based on chromium, nickel, antimony and cyanide concentrations exceeding remediation levels (RLs).

The 1999 ROD Amendment broke down the volume estimate into two categories. It stated that the approximate volume of cyanide- and metals-contaminated sludge/soil was 1,750 yd³, and the approximate volume of metals-contaminated soil was 1,250 yd³. These estimates were taken from the ARCADIS Geraghty & Miller, Inc. 1996 Supplemental Feasibility Study.

In the Final Design Report for the Sludge/Soil Remediation (RD) the volume was recalculated as 2,300 yd³ of cyanide- and metals-contaminated sludge/soil (requiring off-site treatment and disposal), and 1,165 yd³ of metals-contaminated surficial soils (requiring on-site stabilization), based on supplemental field investigations and treatability studies. The estimate for metals-contaminated surficial soils was based on the assumption that the soil immediately above the sludge drying beds and extending out to enclose the discrete sampling locations with cyanide and/or metals-concentrations above RLs in a continuous pattern would all need to be excavated and treated. This also included the assumption that all of the cyanide was present in the amenable form and that all of the chromium was present in the hexavalent state.

During May 24-25, 2000, on-site surficial soils in the areas of anticipated remediation were gridded and sampled, as described in the RD. The grids were surveyed and established as 50-feet by 50-feet in dimension. Twenty-two grids were utilized in the RD. Of the 22 grids, 16 were sampled. The remaining 6 grids are located on Norfolk Southern property and were only recently sampled due to challenges in obtaining an Access Agreement. At the time of this printing, the results had not been received. The samples were analyzed for hexavalent chromium, nickel, antimony and in some grids cyanide. The results showed that only 4 of the 16 grids sampled in May had concentrations above RLs. The sampling report, with laboratory data sheets and chain-of-custody records for the May sampling event have been placed in the Administrative Record.

Through a close review of the new analytical data, the RI, the 1992 ROD, and the RD, and a meeting between EPA, NC DENR and ARCADIS Geraghty and Miller, Inc. (consultant to the PRPs), it was determined that the volume of surficial soil requiring excavation in the previous documents was overestimated based on assumptions. A thorough discussion of this analysis can be found in a Memo from Remedial Project Manager Samantha Urquhart-Foster to the File dated June 21, 2000, which is located in the Administrative Record. The conclusion was drawn that the surficial soil remediation areas (and therefore volume) were originally calculated based on the RI data and assumptions that all cyanide was present in the amenable form, that all of the chromium was present in the hexavalent state, and that a contiguous area was marked for remediation instead of identifying "hot spots". Based on the RI data assumptions and comparison to the May 2000 data recently obtained, the revised estimate of the volume of surficial metals-contaminated soil is 650 yd³.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES OR NEW ALTERNATIVES

Stabilizing 650 yd³ of metals-contaminated soils with Portland Cement, placing the stabilized wastes on-site and covering it with a vegetative groundcover is not cost effective. Therefore, the modified remedy will be to transport the metals-contaminated surficial soils to the same facility as the cyanide- and metals-contaminated-sludge/soil. Due to the concentrations of the metals in the soils, it is not anticipated that treatment will be required prior to disposing of these soils into a Subtitle C landfill.

The major components of the modified remedy for the cyanide- and metals-contaminated sludge/soil includes:

- Excavating approximately 2,300 cubic yards of cyanide-impacted sludge;
- Transporting the sludge off-site to an appropriate treatment and disposal facility;
- Treating the sludge with alkaline chlorination to reduce levels of cyanide;
- Reducing any hexavalent chromium present in the sludge to trivalent chromium;
- Stabilizing the sludge for metals to reach the disposal requirements established by the disposal facility; and
- Disposing of the treated and stabilized sludge in the off-site facility.

The modified remedy for the metals-contaminated soil which does not require treatment for cyanide, but did exceed remediation levels for metals includes:

- Excavating approximately 650 cubic yards of metals-impacted soils;
- Transporting the soils off-site to an appropriate treatment and disposal facility;
- Disposing of the soils in the off-site facility.

The excavated areas will then be backfilled, graded, covered with topsoil and seeded with a vegetative cover.

A side by side comparison of the differences in the remedy are shown in the table below:

	1999 ROD AMENDMENT	2000 PROPOSED CHANGES
Volume:	Metals*: 1,250 yd ³	Metals: 650 yd ³
	Cyanide*: 1,750 yd ³	Cyanide: 2,300 yd ³
Treatment:	Metals: on-site stabilization	Metals: none
	Cyanide: off-site treatment	Cyanide: off-site treatment
Disposal:	Metals: on-site landfill	Metals: Subtitle C Landfill
	Cyanide: Subtitle C Landfill	Cyanide: Subtitle C Landfill
Costs:	Estimated \$2,582,385 (RD revised estimate to \$2,735,000)	Estimated \$2,585,000 (-\$150,000).
Post remedy:	Stabilized soil remains on-site. Monitoring and maintenance of cap required.	All soil/sludge is removed from the Site. No monitoring and maintenance, other than establishing grass, is required.

* "Metals" refers to metal-contaminated soil. "Cyanide" refers to cyanide- and metal-contaminated sludge/soil.

Modifying the remedy will save approximately \$150,000, will reduce the time for Site remediation by several weeks, will eliminate the need for deed restrictions to prevent intrusion into the buried, stabilized wastes, will allow for unrestricted land use, and will eliminate the maintenance and periodic testing required of an on-site landfill.

5.0 SUPPORT AGENCY COMMENTS

NC DENR was given the opportunity to review this ESD. They concur with this modified remedy.

6.0 STATUTORY DETERMINATIONS

The modified remedy satisfies CERCLA Section 121. EPA and NC DENR believe that the changes made to the remedy have not decreased the protectiveness for human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to the Remedial Action, and are cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.


7.0 PUBLIC PARTICIPATION COMPLIANCE

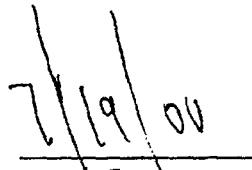
As required by Sections 300.435(c)(2)(i)(A) and 300.825(a)(2) of the NCP, this ESD will be added to the Administrative Record for the JFD Electronics/Channel Master Superfund Site. Copies of the Administrative Record are kept at the two locations listed below:

Richard H. Thornton Public Library
210 Main Street
Oxford, North Carolina 27565
(919) 693-1121
Hours: Monday-Thursday, 10 AM - 8 PM
Friday & Saturday, 10 AM - 5 PM

US EPA Region 4 Records Center
61 Forsyth Street, SW
Atlanta, Georgia 30303
(404) 562-8946
Hours: Monday - Friday 8 AM - 4:30 PM

As required by Section 300.435(c)(2)(i)(B) of the NCP, a notice of availability and a brief description of the ESD will be placed in the *Oxford Public Ledger* newspaper.


Richard D. Green, Director
Waste Management Division


Date